

AMENDMENTS

IN THE CLAIMS:

- 1 1. (Cancelled) An obturator system for filling an endodontically prepared tooth root canal
2 comprising:
3 an elongated heat conductible shaft having proximal and distal end portions;
4 filler material on said shaft distal end portion, said shaft with the filler material
5 thereon being insertable into a tooth root canal; and
6 a heat source associated with and serving to selectably heat said shaft.
- 1 2. (Cancelled) An obturator system according to Claim 22 wherein said heater employs
2 flowing electrical current through a portion of said shaft.
- 1 3. (Cancelled) An obturator system according to Claim 22 wherein said heat source
2 employs electric inductance heating of said shaft.
- 1 4. (Cancelled) An obturator system according to Claim 2 wherein said heat source includes:
2 a first conductor attached at a first location to said shaft;
3 a second conductor attached at a second spaced apart location to said shaft; and
4 circuitry for applying voltage to said first and second conductors.
- 1 5. (Cancelled) An obturator system according to Claim 3 wherein said heat source includes:
2 a coil of wire surrounding a portion of said shaft proximal portion; and
3 circuitry for supplying alternating current to said coil of wire.
- 1 6. (Cancelled) An obturator system according to Claim 22 wherein said heat source
2 includes:
3 a generator impinging electromagnetic wave energy onto said shaft.

- 1 7. (Cancelled) An obturator system according to Claim 22 including:
2 a signal generating temperature sensor affixed to said shaft.
- 1 8. (Cancelled) An obturator system according to Claim 7 including:
2 circuitry attached to said temperature sensor employed to control said heat source.
- 1 9. (Cancelled) An obturator system according to Claim 22 wherein said shaft is of metal.
- 1 10. (Cancelled) An obturator system according to Claim 22 wherein said shaft is of plastic
2 having electrically conductive material admixed therein.
- 1 11. (Cancelled) An obturator system according to Claim 22 wherein said heat source has an
2 inner electrically conductive portion and an outer electrically conductive portion
3 separated for a portion of the shaft length by a layer of insulation said shaft being
4 heatable by flowing current through said inner and outer electrically conductive portions.
- 1 12. (Cancelled) An obturator system according to Claim 22 wherein said heat source
2 employs sonic energy.
- 1 13. (Cancelled) An obturator system according to Claim 22 wherein said heat source
2 employs piezoelectric energy.
- 1 14. (Cancelled) A method of filing an endodontically prepared root canal comprising:
2 applying filler material to a distal portion of an elongated shaft formed of heat
3 conducting material;
4 inserting said proximal portion of said shaft having said filler material thereon
5 into the root canal;
6 heating said shaft to decrease the surface tension of said filler material; and

CERTIFICATE OF MAILING UNDER 37 CFR 1.10

I hereby certify that this document and any document referred to as
being attached therein is being deposited with the U.S. Postal Service as
first class mail in an envelope addressed to: Mail Stop Patent
Amendment- NO FEE, Assistant Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450, on 23 April 2004.

Paul H. Johnson
Typed Name


Signature

removing said shaft leaving said filler material in the root canal.

15. (Cancelled) A method of filling a root canal according to Claim 23 wherein said step of heating said shaft includes heating the shaft with electrical energy.

16. (Cancelled) A method of filling a root canal according to Claim 23 includes applying alternating electrical current to a coil surrounding a portion of said shaft.

17. (Cancelled) A method of filling a root canal according to Claim 23 wherein said step of heating said shaft includes applying electromagnetic energy to said shaft.

18. (Cancelled) A method of filling a root canal according to Claim 23 includes applying an electrical potential to said shaft to cause current to flow through at least a portion of said shaft.

19. (Cancelled) A method of filling an endodontically prepared root canal according to Claim 23 wherein said shaft has an inner electrically conductive portion and an outer electrically conductive portion separated for a portion of the shaft length by a layer of insulation and wherein the step of heating said shaft includes flowing current through said inner and outer conductive portions.

20. (Cancelled) A method of filling an endodontically prepared root canal according to Claim 12 wherein said step of heating said shaft is accomplished by employing sonic energy.

21. (Cancelled) A method of filling an endodontically prepared root canal according to Claim 13 wherein said step of heating said shaft is accomplished by employing piezoelectric energy.

1 22. (Cancelled) An obturator system for filling an endodontically prepared tooth root canal
2 comprising:

3 an elongated heat conductible shaft having a proximal and a smooth distal end
4 portion;

5 filler material applied onto said shaft distal end portion, said shaft having
6 sufficient rigidity to serve as a vehicle for carrying said filler material thereon and
7 compacting the filler material into lowermost portions of a tooth root canal; and

8 a heat source associated with and serving to selectably heat said shaft to reduce
9 surface tension of said filler material permitting said shaft to be removed to leave said
10 filler material compacted in said root canal.

1 23. (Cancelled) A method of filing an endodontically prepared root canal of a tooth
2 comprising:

3 applying filler material to the external surface of a distal portion of an elongated
4 structural shaft formed of heat conducting material, the shaft having sufficient rigidity to
5 serve as a vehicle for carrying and compacting said filler material into lowermost
6 portions of a root canal;

7 inserting said proximal portion of said shaft having said filler material thereon
8 into the root canal;

9 heating said shaft to decrease the surface tension of said filler material; and

10 removing said shaft leaving said filler material in the root canal.

1 24. (Cancelled) An obturator system according to Claim 22 wherein said heat source is a
2 sonic generator that imparts high frequency sound energy to said shaft to raise the
3 temperature of said shaft.

1 25. (Cancelled) An obturator system according to Claim 22 wherein said heat source is a
2 piezoelectric ultrasonic generator that physically vibrates said shaft to raise the
3 temperature of said shaft.

1 26. (New) A method of filling an endodontically prepared root canal of a tooth comprising:
2 applying filler material to the external surface of a distal portion of an elongated
3 structural shaft, the shaft having sufficient rigidity to serve as a vehicle for carrying said
4 filler material into lowermost portions of a root canal;

5 inserting said proximal portion of said shaft having said filler material thereon
6 into the root canal; and

7 applying sound energy to said shaft at a frequency sufficiently high to cause said
8 shaft to vibrate at a rate that thereby the surface tension of said filler material is
9 substantially decreased allowing said shaft to be removed leaving said filler material in
10 the root canal.

1 27. (New) A method according to Claim 26 including:

2 affixing a signal generating temperature sensor to said shaft and using a signal
3 generated by said temperature sensor to control said application of sound energy to said
4 shaft.

1 28. (New) A method according to Claim 26 wherein said shaft is of metal.

1 29. (New) A method according to Claim 26 wherein said shaft is of plastic or fiberglass.

CERTIFICATE OF MAILING UNDER 37 CFR 1.10

I hereby certify that this document and any document referred to as
being attached therein is being deposited with the U.S. Postal Service as
first class mail in an envelope addressed to: Mail Stop Patent
Amendment- NO FEE, Assistant Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450, on 22 April 2004.

Paul H. Johnson
Typed Name

29 P.H.J.
Signature

1 30. (New) A method according to Claim 26 wherein said step of applying sound energy to
2 said shaft is accomplished by employing sonic energy.

1 31. (New) A method according to Claim 26 wherein said step of applying sound energy to
2 said shaft is accomplished by employing piezoelectric energy.

1 32. (New) An obturator system for filling an endodontically prepared tooth root canal
2 comprising:

3 an elongated shaft having a proximal portion and a smooth distal portion;

4 filler material applied onto said shaft distal portion, said shaft having sufficient
5 rigidity to serve as a vehicle for carrying said filler material thereon into the lowermost
6 portions of a tooth root canal; and

7 a source of sound energy that is applied to said shaft at a frequency sufficiently
8 high to cause said shaft to vibrate at a rate that thereby the surface tension of said filler
9 material is substantially decreased allowing said shaft to be removed leaving said filler
10 material in the root canal.

1 33. (New) An obturator system according to Claim 32 wherein said source of sound energy
2 is a source of sonic energy.

1 34. (New) An obturator system according to Claim 32 wherein said source of sound energy
2 employs piezoelectric energy.

CERTIFICATE OF MAILING UNDER 37 CFR 1.10

I hereby certify that this document and any document referred to as
being attached therein is being deposited with the U.S. Postal Service as
first class mail in an envelope addressed to: Mail Stop Patent
Amendment- NO FEE, Assistant Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450, on ~~21~~ April 2004.

Paul H. Johnson
Typed Name


Signature

1 35. (New) An obturator system according to Claim 32 wherein said source of sound energy
2 is a laser.

1 36. (New) An obturator system according to Claim 32 wherein said coil is telescopically
2 removable from said shaft.

1 37. (New) An obturator system according to Claim 32 including a signal generating
2 temperature sensor affixed to said shaft.

1 38. (New) An obturator system according to Claim 37 including:
2 circuitry including said temperature sensor by which said source of sound energy
3 is controlled in response to the temperature of said shaft.

1 39. (New) A method of filling an endodontically prepared root canal of a tooth comprising:
2 applying filler material to the external surface of a distal portion of an elongated
3 structural shaft having sufficient rigidity to serve as a vehicle for carrying said filler
4 material into lowermost portions of a root canal;
5 inserting said proximal portion of said shaft having said filler material thereon
6 into the root canal;
7 applying energy to shaft of sufficient intensity to decrease the surface tension of
8 said filler material; and
9 removing said shaft leaving said filler material in the root canal.

1 40. (New) The method of filling an endodontically prepared root canal according to Claim
2 39 wherein the step of applying energy to said shaft is accomplished by the application of
3 sonic energy.

1 41. (New) The method of filling an endodontically prepared root canal according to Claim
2 39 wherein the step of applying energy to said shaft is accomplished by the application of
3 piezoelectric energy.